Small Business Innovation Research/Small Business Tech Transfer

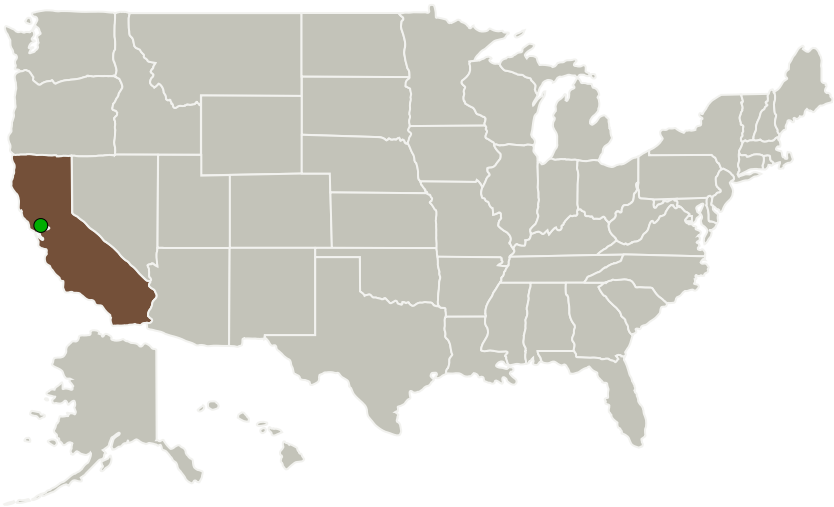
Plug-and-Play ATM-Centric Speech-Enabled Agent for SMART-NAS Testbed, Phase I

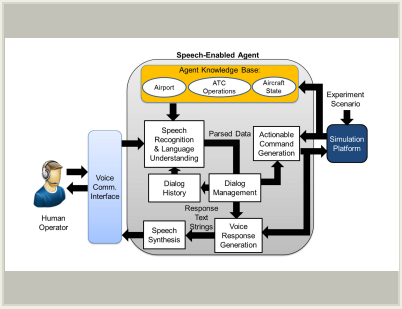
Completed Technology Project (2016 - 2016)

Project Introduction

To accelerate the acceptance of new concepts developed under NextGen, the Shadow Mode Assessment using Realistic Technologies for the National Airspace System (SMART-NAS) testbed, which enables integrated examinations of NextGen or beyond-NextGen concepts under distributed environment, becomes critical to the Air Traffic Management (ATM) community. To support human-in-the-loop (HITL) testing for NAS-wide simulation using SMART-NAS testbed, this proposal addresses the feasibility of constructing an ATM-centric speech-enabled agent as a plug-and-play service of the SMART-NAS testbed. This service addresses the gap of HITL testing that is currently limited to small regions of airspace and few airports with a small number of controllers and pseudo-pilots. Leveraged from our prior development on noise-robust speech recognition system for the Navy and virtual agents for NASA to support HITL simulations, an infrastructure of ATM-centric speech-enabled agent will be developed. A feasibility demonstration of the speech agent as a service component of the SMART-NAS testbed will be provided by the end of the Phase I research. Phase II work will utilize the infrastructure built in Phase I to expand the speech-enabled agent to a full-scale prototype that supports HITL testing for NAS-wide simulation using the SMART-NAS testbed.

Primary U.S. Work Locations and Key Partners





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Organizations Performing Work	Role	Type	Location
Optimal Synthesis, Inc.	Lead Organization	Industry Small Disadvantaged Business (SDB)	Los Altos, California
Ames Research Center(ARC)	Supporting Organization	NASA Center	Moffett Field, California

Primary U.S. Work Locations
California

Project Transitions

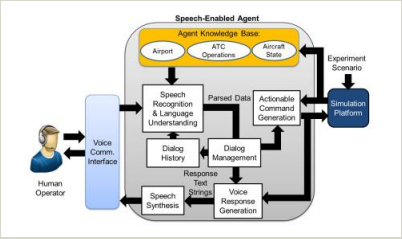
June 2016: Project Start

December 2016: Closed out

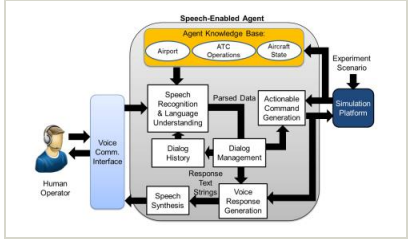
Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/140212)*

Images



Briefing Chart Image
Plug-and-Play ATM-Centric Speech-Enabled Agent for SMART-NAS Testbed, Phase I *(https://techport.nasa.gov/image/126021)*



Final Summary Chart Image
Plug-and-Play ATM-Centric Speech-Enabled Agent for SMART-NAS Testbed, Phase I Project Image *(https://techport.nasa.gov/image/133590)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Optimal Synthesis, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

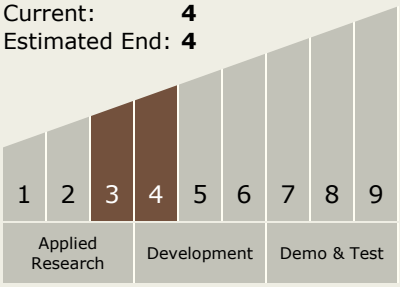
Carlos Torrez

Principal Investigator:

Hui-ling Lu

Technology Maturity (TRL)

Start: **3**
Current: **4**
Estimated End: **4**



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Technology Areas

Primary:

- TX10 Autonomous Systems
  - TX10.3 Collaboration and Interaction

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System